



In The Clear

The Weather Newsletter For
Interior Central California



Spring/Summer 2012 Edition National Weather Service San Joaquin Valley/Hanford, CA

NWS San Joaquin Valley Staff Corner

Please welcome Paul Iñiguez, our new Science and Operations Officer (SOO), to the National Weather Service Forecast Office in Hanford! Paul recently arrived from NWS Phoenix where he was a General Forecaster. He also worked at NWS offices in La Crosse, WI, Chanhassen, MN, and Little Rock, AR. Originally from Minnesota, Paul earned a Bachelor's of Science in Meteorology from St. Cloud State University in St. Cloud, MN and a Master's of Arts in Geography from Arizona State University. Paul has a number of interests outside of weather/climate, including jogging, following state/national politics, history, bicycling, following the Minnesota Vikings, and playing dodgeball (yes, that game you probably played as a kid!).

The SOO's responsibility includes integrating new science and technology into operations, staff training, and conducting research both in-house and with other government and academic partners. Paul greatly looks forward to strengthening NWS Hanford's activities on these fronts over the coming months and years.

Welcome aboard, Paul!



SKYWARN WX6HNX

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SKYWARN Program Updates across Central California

James Brotherton, Warning Coordination Meteorologist

SKYWARN Activations during the April severe weather events

We would like to thank the SKYWARN volunteer community for their service during the numerous April severe weather events. Several valuable reports were gathered by the SKYWARN community during this time. These reports are extremely valuable so that the National Weather Service can accurately warn local residents of the dangers of severe weather. Storm reports are also important so that our warning forecasters know when a particular storm is actually producing *less-severe* conditions than we are expecting based on radar and satellite trends. In addition, spotter reports add credibility to a weather warning and can add that little extra value that prompts citizens into action.

In particular, a heartfelt thank you to the SKYWARN amateur radio volunteers who came in and worked the SKYWARN radio desk at NWS Hanford during adverse weather conditions. These individuals included: **Ed Vonderbeck, Dan Pruitt, Hal Clover, and Mike Enquist.**

SKYWARN Recognition Day

SKYWARN Recognition Day (SRD) was held on December 2nd, 2011. The participation at NWS Hanford was a roaring success. Volunteers from throughout central California worked the entire 24-hour event at the Weather Forecast Office. All told, about 70 contacts were made this year, which is commendable given the less-than perfect atmospheric conditions during the time of the event.



Ed Vonderbeck (left) and Hal Clover (right) work the radios during SRD 2011



Mike (left) and Kevin Enquist (right) work the radios during SRD 2011

SKYWARN Program Update across Central California (continued)

SKYWARN Training Updates

Over the last few months, several hundred Forest Fire Lookouts have been trained to spot developing thunderstorms and possible severe weather. These volunteers will be taking observations throughout the Southern Sierra this summer. We are very excited to have access to their reports. Thank you to all of our new volunteers who have joined the SKYWARN program. Additional SKYWARN training was held on March 31st in Clovis where several new volunteers were added to the program. Please give a warm welcome to all the new volunteers!

Upcoming Spotter Training

Spotter Basics will be held in Modesto on June 2nd at the Regional Fire Training Center. Please see our website for more details.

Spotter Basics will also be held in Clovis on October 5th at the Clovis Senior Center. Please see our website for more details.

If you are part of a community or volunteer group and would like to host an upcoming SKYWARN training class, please contact Warning Coordination Meteorologist James Brotherton at 559-584-0583, x223. We ask that you organize at least 8 attendees. There are no other requirements or cost to attend SKYWARN training classes.

Online SKYWARN Training is now available

As an alternative to our traditional classes which are normally held across central California, we now offer online training to meet the requirements for the SKYWARN program. NWS Hanford is requiring the completion of two online training modules in place of our normal face-to-face training class. Here are the training requirements:

Complete the online SKYWARN spotter training course which includes two modules: *Role of the SKYWARN spotter*, and *SKYWARN Spotter Convective Basics*. The training course takes about two hours to complete and can be found online here:

https://www.meted.ucar.edu/training_course.php?id=23

Periodic in-person training will still be held, but we are happy to offer this online training as an option to the face-to-face training which isn't always available nearby.

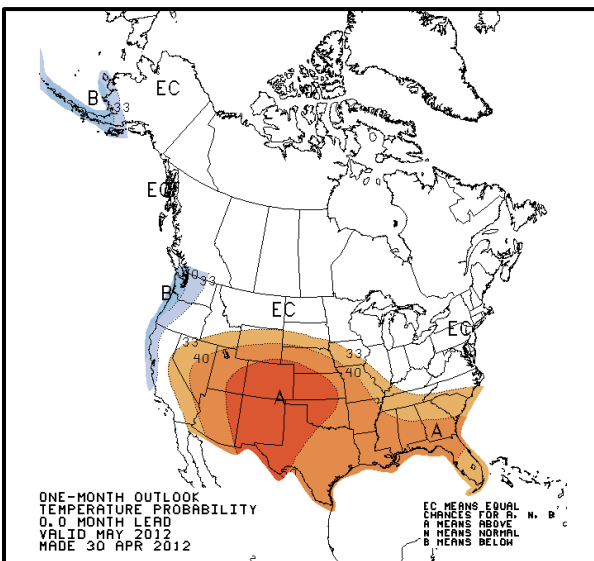
Recent Drought-Like Conditions and Seasonal Outlook

By Brian Ochs, Meteorologist and Assistant Climate Services Focal Point

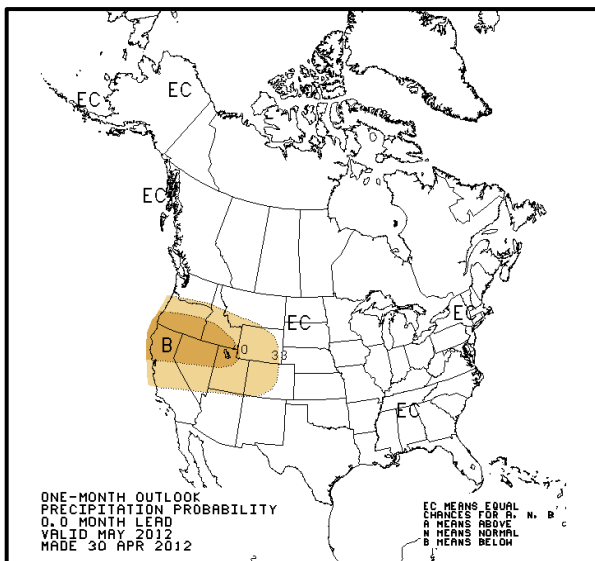
During October 2011 until February 2012, precipitation was well below average in terms of rainfall and mountain snowpack. Until early this spring, rainfall at Bakersfield and Fresno remained at 50 percent of average or less. Mountain snowpack as of Mar 1st was below 25 percent of average throughout the southern Sierra Nevada. However, some areas increased to 25-49 percent of average by May 1st due to more snowfall during March and April, according to the USDA National Water and Climate Center.

While there was some relief during March and April, precipitation has not been enough to reach the seasonal average. During May and June, precipitation is on average around 0.3 inch for Bakersfield and 0.6 inch for Fresno. Precipitation for Fresno remains at 2.71 inches below average, while Bakersfield remains at 1.28 inches below average. Precipitation would obviously have to be significantly above average during the rest of the water year (through the end of June) in order to reach average (or normal seasonal) amounts.

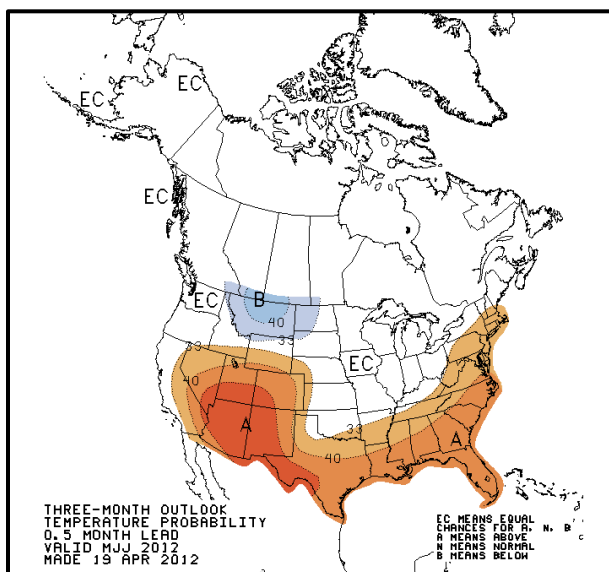
Here are the monthly/seasonal temperature and precipitation outlooks from the Climate Prediction Center below (Please note the following: A = above average, B = below average, EC = equal chances):



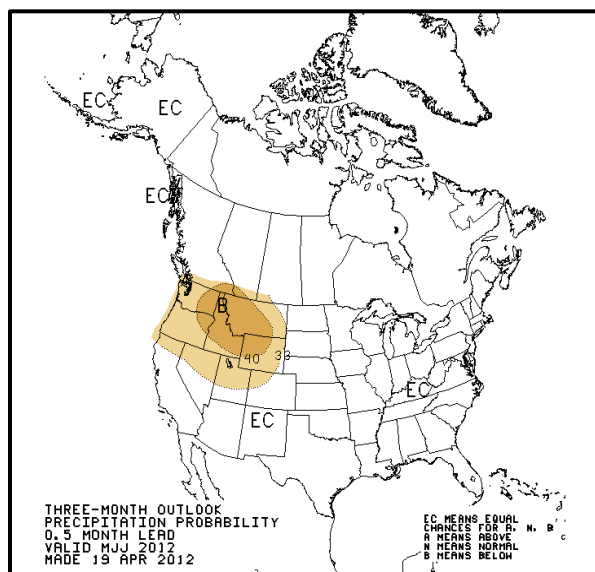
Temperature Outlook for June 2012



Temperature Outlook for Jun-Aug 2012



Precipitation Outlook for June 2012

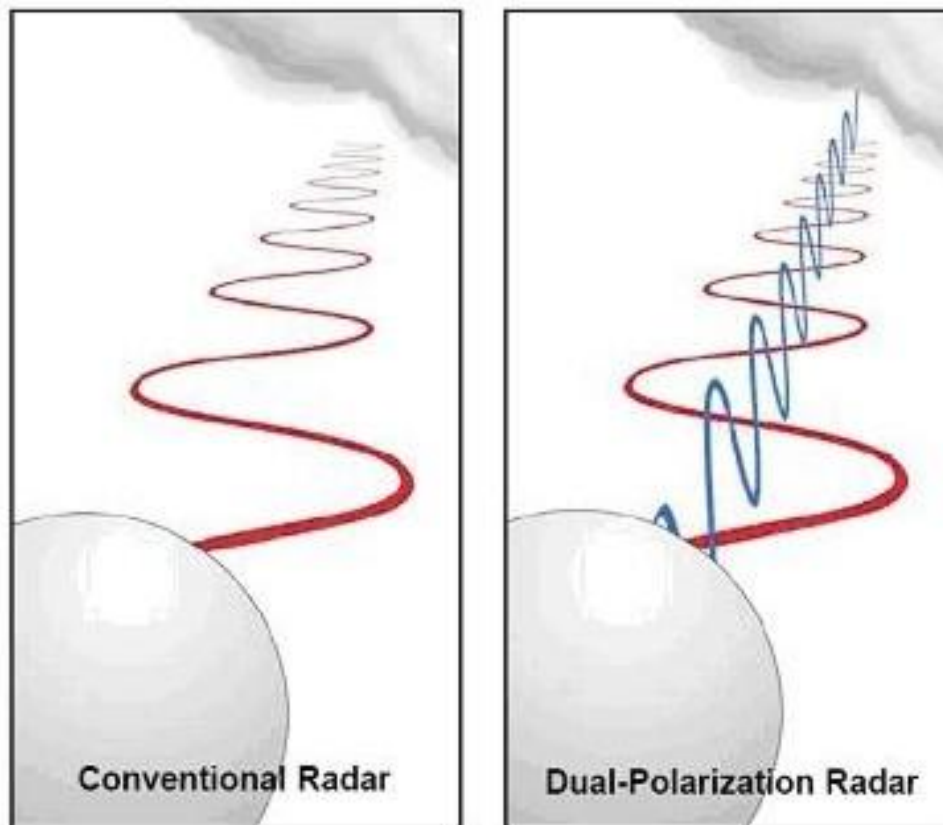


Precipitation Outlook for Jun-Aug 2012

Dual-Pol is Coming!

Steve Mendenhall, Meteorologist in Charge

NWS Doppler weather radars across the country are undergoing a significant upgrade to dual-polarization (dual-pol) technology. Conventional Doppler radars transmit and receive their signals in the horizontal direction, only. After being upgraded to dual-pol, they can also send/receive in the vertical.



Radars with the upgrade can detect not only where targets are, but can also determine their shape. Why is this important? Using this added information, dual-pol radars will provide significantly improved estimates of precipitation amounts, as well as a greatly-enhanced ability to discriminate between precipitation types (snow, melting snow, rain, hail, etc.). All of this will benefit NWS forecast and warning services.

The radar in Hanford is scheduled for its dual-pol upgrade this summer, from July 16th through the 29th. Be sure to watch our website and Facebook page for more information as we get ready for dual-pol!

WORD SEARCH PUZZLE

Can you find all of the weather instruments hidden in this puzzle? The words run either horizontally, vertically or diagonally. Good luck and have fun!

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M O R H C Y S P E T E M O R A B A S N O W H R U
E N A P D N I W S C O P E E N I C K H I Y A A R
E E L S A T H E R M O M E T E O A Y N D D G D E
R P S Y C I H Y G R O M N E P U A G N I A R I T
T H O C E W I N D V A N E M H R V R O I N O O E
Y E E C A G N I A R A I N O O E E S A C V M O M
E S D H S A M B A R O M E M E T E R E P A E H O
T C G N N O N I A G E G E E E E I Y R H T P R
E O Y U O C H I C U L T R N N M L R G G E S A H
M P H N A S N P I A E P E A O O A E N N Y A R C
O H Y D R G O C E G E C R M M N N I E C I N G Y
L O G R A C E I L N E A E E O A A P H N K A O S
I T R U I K C R D I D T T H E R M O M E T E R B
E H G G N I A R E A E E O R D Y H E R P N E D A
C E R O G R A P N R R R G R A P H C D O A T Y R
A R A R A L O A C S E H P E N Y E P Y C R E H O
N M P Y U C V R E T E M O R G S E M H S Y M S M
E O H P S D I R E T E M O R Y P O E O O P O C E
M M Y O N M K M H Y G R O R O M E T E R E R O T
O E R I O S O I D A R M A C A N E M O G A A P E
M T W P Y R A N O M E T S R I B O K A Y A B E P
H P Y R A N O M E T R E T E M O R G Y H Y G R O
Y R O B A R O M E T R P O C S O H P E N A V E N
  
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*anemometer
barometer
ceilometer
hydrograph*

*hygrometer
hygroscope
nephoscope
psychrometer*

*pyranometer
radiosonde
raingauge
thermometer
windvane*



Heat Tips for This Summer

By Brian Ochs, Meteorologist

Summer will soon arrive! Temperatures have been staying above seasonal averages during much of last winter; however, they cooled to near average during March and the first half of April. However, there is no correlation between the prior winter and spring versus how warm or cool the upcoming summer will actually be. For every summer on record (since the 1880s, or late nineteenth century) temperatures have reached triple digits in Bakersfield and Fresno.

Here are a few heat tips to help deal with the summer heat:

- Wear loose-fitted, light-colored, and lightweight clothing if spending time outdoors.
- Take brief breaks if outdoors for extended periods of time and drink plenty of water, instead of soft drinks or alcoholic beverages. Soft drinks and alcoholic beverages often speed up dehydration.
- The warmest times of day are usually from around 10:00 AM to 4:00 PM in most locations, although the highs can often occur later in the day. For example, maximum temperatures recorded in most locations throughout the San Joaquin Valley are often as late as 5:30 or 6:00 PM.
- Whenever possible, stay indoors, especially during the warmest parts of the day.
- Watch for signs of heat stroke – hot, red skin; changes in consciousness; rapid, weak pulse; rapid, shallow breathing. If you suspect someone is suffering from heat stroke, call 9-1-1 and move the person to a cooler place. Quickly cool the body by applying cool, wet cloths or towels to the skin (or misting it with water) and fanning the person. Watch for signs of breathing problems and make sure the airway is clear. Keep the person lying down.

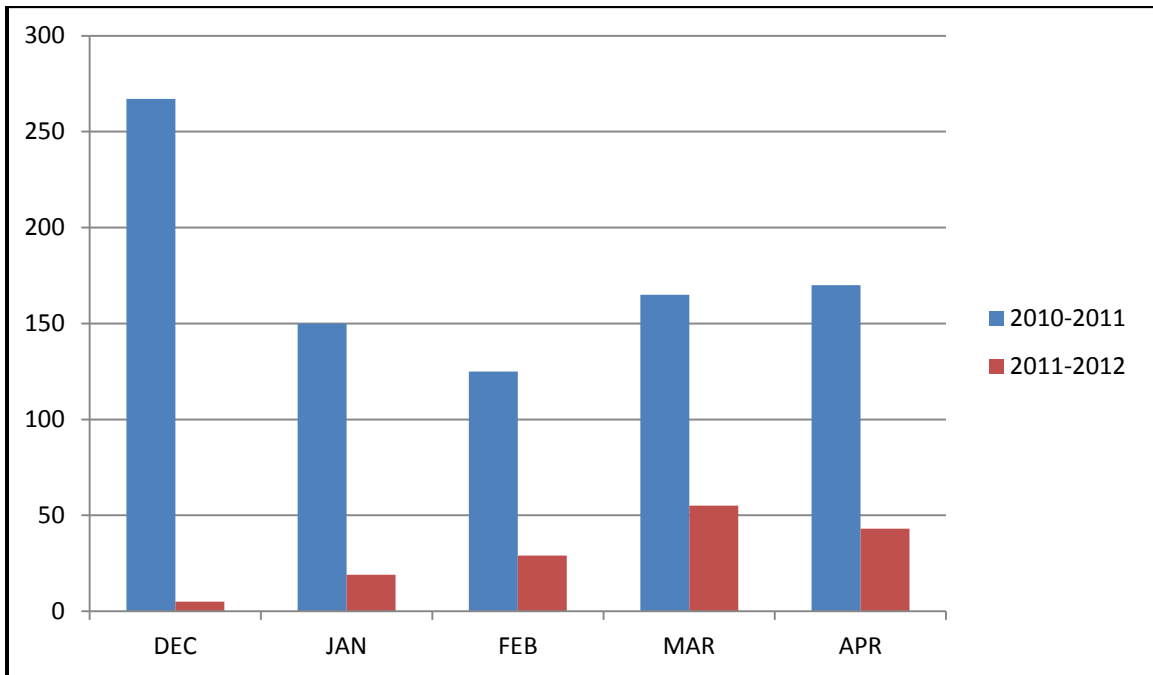
In contrast, there is an increased risk for hypothermia if swimming in lakes, rivers, and other bodies of water in the Sierra Nevada during brief heat waves in the early summer and late spring after long periods of cooler temperatures and abundant snowfall, since the water can remain cold for quite some time. A prolonged period of heating is necessary to warm the water to safer and more comfortable temperatures.

For more information on heat safety, please visit www.redcross.org

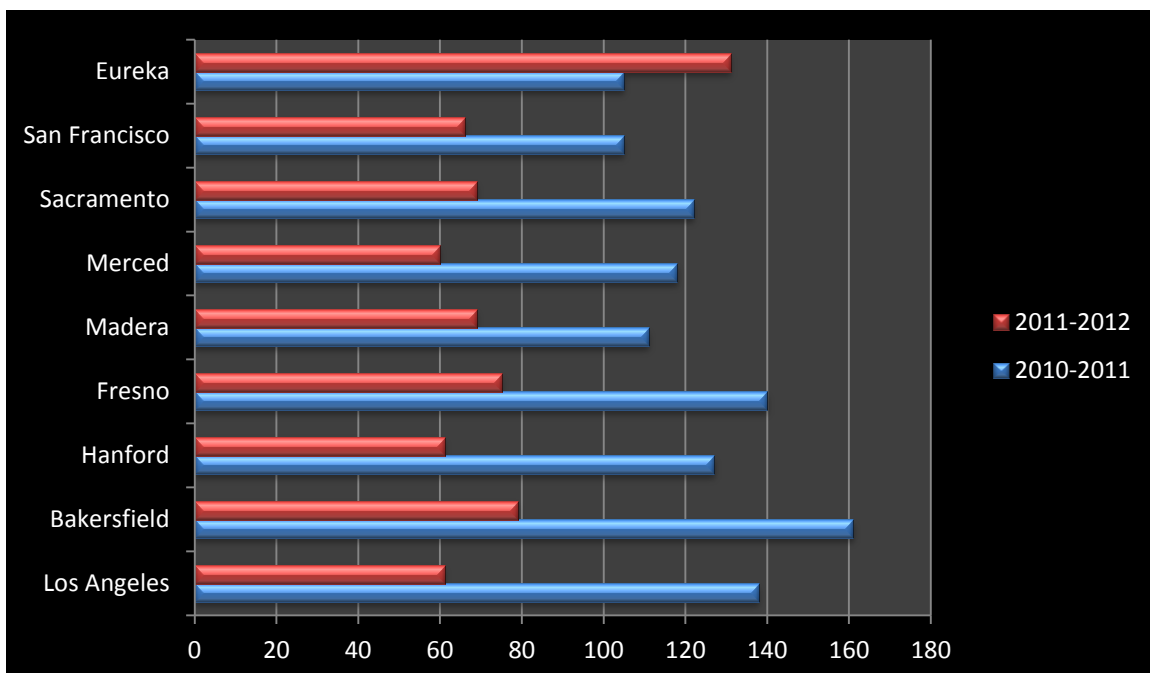
Percent of Normal Seasonal Snowpack and Rainfall

By Kevin Durfee, Meteorologist

% OF NORMAL SNOWPACK OVER THE SOUTHERN SIERRA



PERCENTAGE OF NORMAL RAINFALL AS OF MAY 1ST (THIS SEASON VERSUS LAST SEASON)



Update on Sending Weather Observations

Paul Jones, Observation Program Leader

We are coming close to the paperless initiative that started five years ago. We are slowly but surely coming to the point where all electronic (B91) forms will come through our Forecast Office and be sent to the National Climatic Data Center (NCDC) directly from here.

What does that do for us here at the forecast office? We won't have to send a monthly package by U.S. Mail to the NCDC. We won't have to send envelopes and stamps to each of our COOP stations and the station won't have to send the B91 via U.S. mail. Oh! There will still be a few stations that we will need to get the B91 through the mail, fax, or e-mail, but we will be around 90% paper free.

Nationwide there are 83% of the stations that are paperless with more being added as each month passes. The program, WxCoder, that is used to send observations, has been the mainstay of this change. However, some stations may not be aware that the IV-ROCS automated phone system is also available if you don't have a computer or don't want to be bothered by the computer. IV-ROCS stands for (Interactive Voice-Remote Observation System) which can be set up as easy as 1-2-3 for most stations. Of course, the station must be registered in order for the system to work. Registration is quick and easy. If there are any stations out there that would like to be placed on the IV-ROCS please call us on the toll-free number or our public service number at 559-584-3752. We would be glad to get you on IV-ROCS.

Progress has been moving along on the solar powered Max/Min Temperature System (MMTS). Several stations have been outfitted with the new MMTS with great success. We have even been able to get the system installed in stations that previously couldn't have one due to concrete or space restrictions. It is best to have a Cotton Region Shelter (CRS), but there are other ways to have it set up which works just as well. Give us a call and ask about the new solar MMTS installation at the above numbers.

What does this new system do for you and us? It will eliminate the need for the liquid in glass thermometer which has posed a hazard to the environment. The major hazard is the mercury in glass maximum thermometer which if still in use at a CRS must have a Mercury Spill Kit in the shelter in case of max thermometer breaks.

Attention Motorists!

Need to know the latest road reports when you are traveling?
CalTrans has set up a special number to find out the status of roads.

Dial 1-800-427-ROAD.

NWS San Joaquin Valley is on Facebook!

Check out the Facebook page for the Hanford, CA forecast office.
Link is below:

<http://www.facebook.com/US.NationalWeatherService/Hanford.gov>

Severe Weather in the San Joaquin Valley!

Brian Ochs, Meteorologist

There were two consecutive days of severe weather in the San Joaquin Valley on Apr 11-12, 2012! Several severe thunderstorm warnings and one tornado warning were issued. A cold, unstable airmass over the region and sufficient surface heating from the sun were responsible for the severe weather.

During the first day, there were nine severe thunderstorm warnings and one tornado warning issued. This region usually experiences this amount of severe thunderstorm/tornado warnings in approximately one year! The severe thunderstorm warnings verified due to numerous reports of one inch diameter hail. In addition, hail of at least pea-size (or $\frac{1}{4}$ inch in diameter), covered numerous roadways about 2-3 inches deep. However, there were no reports of tornadic winds or damage, although there were numerous reports of funnel clouds and even wall clouds.

A couple of thunderstorm cells lasted for around 3-4 hours. The first cell developed around 11 AM PDT north of Coalinga, or west of Interstate 5. This cell moved eastward and continued toward Lemoore and Hanford. It finally dissipated after moving northeastward toward Kingsburg. However, before it did so, it dumped one inch diameter (quarter-size) hail in Hanford and points to the northeast. Due to the depth (2-3 inches) of the quarter-size and smaller hail, roads were briefly impassible. Another supercell thunderstorm developed just to the west of the first cell around 1 PM just northeast of Hanford. This second storm tracked eastward and became most intense as it approached Highway 99. In fact, Highway 99 near Traver and Kingsburg was temporarily closed due to the amount of hail accumulation (around 3 PM PDT). This cell also dumped one-inch hail in Traver and up to several miles eastward (or about 8 miles north of Visalia) before it finally dissipated.

During the following afternoon (Apr 12th), golf ball sized (1.75 inches diameter) hail was reported around Atwater due to yet another supercell thunderstorm. This supercell required issuance of three severe thunderstorm warnings. The focus of the most intense thunderstorm activity was centered on the Atwater and Merced areas during this day.



Hailstones in a staff member's hands (measured at 1" in diameter). These fell near Traver (southeast of Kingsburg).



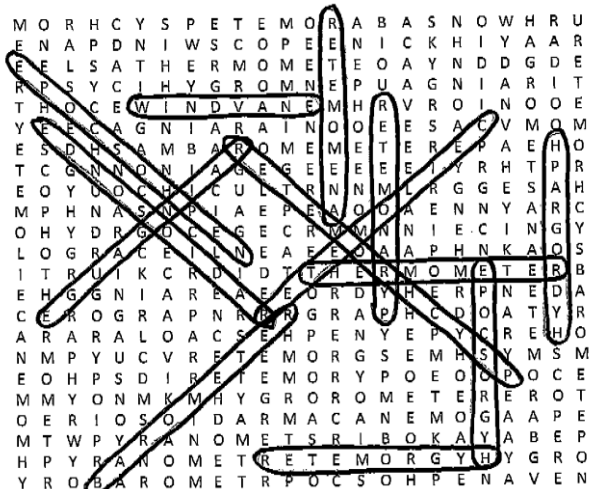
Hail covering roadway (also near Traver) on April 11, 2012. Hail on roadway was around 2 to 3 inches deep!

Runnin' the Numbers Oct 2011-Apr 2012
Brian Ochs, Meteorologist and Assistant Climate Services Focal Point

Runnin' the Numbers		Fresno			Bakersfield		
		OCT '11	NOV '11	DEC'11	OCT '11	NOV '11	DEC'11
T E M P E R A T U R E (°F)	Average Maximum	79.8	63.0	58.3	79.5	63.5	58.9
	Average Monthly	68.0	53.5	45.6	67.1	53.3	45.6
	Departure from Normal	1.8	-0.8	-0.9	-0.1	-1.8	-2.2
	Average Minimum	56.1	43.9	32.8	54.6	43.1	32.3
	Maximum	88	76	69	91	79	65
	Date(s)	15 th , 18 th	3 rd	1 st	15 th	3 rd	25 th
	Minimum	48	38	28	43	35	28
	Date(s)	28 th , 29 th	23 rd , 27 th	24 th	27 th	8 th	25 th , 26 th
	Number of Days Max >=90	0	0	0	1	0	0
	Number of days Min <=32	0	0	17	0	0	19
P R E C I P I T A T I O N (In.)	Total	0.90	0.67	0.00	0.55	0.76	T
	Departure from Normal	0.27	-0.40	-1.77	0.25	0.12	-1.02
	Greatest in 24 hrs	0.90	0.30	N/A	0.52	0.23	T
	Date(s)	5 th	20 th	N/A	5 th	4 th	13 th
	Number of days w/precip.	2	7	0	3	7	2
	Seasonal Total	0.90	1.57	1.57	0.55	1.31	1.31
	Departure from Normal	0.08	-0.32	-2.09	0.13	0.25	-0.77
	Compared to Normal (%)	110%	83.1%	42.9%	131%	124%	63.0%
W I N D (mph)	Peak Speed	33	26	45	33	44	22
	Direction	W	NW	N	NW	SE	NW
	Date(s)	5 th	3 rd , 4 th	1 st	5 th	2 nd	11 th
P R E S S (in.)	Highest	30.18	30.44	M	30.18	30.42	M
	Date	7 th	26 th	M	7 th	26 th	M
	Lowest	29.69	29.74	29.73	29.69	29.71	29.73
	Date	5 th	3 rd	12 th	5 th	11 th	12 th

Runnin' the Numbers		Fresno				Bakersfield			
		JAN '12	FEB '12	MAR '12	APR '12	JAN '12	FEB '12	MAR '12	APR '12
T E M P E R A T U R E (°F)	Average Maximum	61.0	63.3	67.4	74.7	65.2	66.9	70.8	75.7
	Average Monthly	49.3	52.7	56.2	62.9	51.8	54.6	57.7	63.3
	Departure from Normal	+2.7	+1.2	-0.4	+0.9	+4.0	+2.0	+0.1	+0.8
	Average Minimum	37.5	42.0	44.9	51.2	38.3	42.4	44.6	51.0
	Maximum	68	77	78	96	82	81	81	98
	Date(s)	14 th	24 th	5 th	22 nd	2 nd	24 th	5 th , 9 th	22 nd
	Minimum	28	36	35	38	29	36	32	38
	Date(s)	17 th	16 th , 26 th	7 th	6 th	17 th , 18 th	17 th	7 th	6 th
	Number of Days Max >=90	0	0	0	3	0	0	0	3
	Number of days Min <=32	4	0	0	0	3	0	1	0
P R E C I P I T A T I O N (In.)	Total	1.38	0.75	2.43	2.02	0.44	0.29	1.27	1.62
	Departure from Normal	-0.81	-1.28	+0.40	+1.07	-0.72	-0.95	+0.06	+1.10
	Greatest in 24 hrs	0.91	0.27	1.52	1.10	0.34	0.13	0.85	0.86
	Date(s)	20 th - 21 st	29 th	16 th -17 th	13 th - 14 th	23 rd	13 th	17 th	13 th
	Number of days w/precip.	6	7	8	7	5	7	6	8
	Seasonal Total	2.95	3.70	6.13	8.15	1.75	2.04	3.31	4.93
	Departure from Normal	-2.90	-4.18	-3.78	-2.71	-1.49	-2.44	-2.38	-1.28
	Compared to Normal (%)	50.4%	47.0%	61.9%	75.0%	54.0%	45.5%	58.2%	79.4%
W I N D (mph)	Peak Speed	33	32	40	36	37	45	46	35
	Direction	NW	NW	S	NW, N	NW	SE	W	NW, N
	Date(s)	21 st	25 th	17 th	4 th , 5 th	21 st	6 th	31 st	9 th , 26 th
P R E S S (in.)	Highest	30.47	30.32	30.38	30.27	30.44	30.31	30.36	30.26
	Date	25 th	21 st	3 rd	6 th	25 th	21 st	3 rd	6 th
	Lowest	29.77	29.81	29.50	29.73	29.80	29.79	29.56	29.68
	Date	21 st	27 th	17 th	25 th	21 st	7 th	17 th	25 th

Answers to Puzzle on Page 6:



Climate Summaries through April 2012 are available!

Please use the following link if you would like the monthly climate summaries for the central California interior:

<http://www.wrh.noaa.gov/hnx/clisum.php>

Then click on the link for the month you are interested in (earliest date is January 2006).

In The Clear is a newsletter issued by the:



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